A Third World Answer to a Backwoods Power Problem

Electric power in the backwoods is not always as "clean" as that required to run a personal computer. Some sort of power regulation is advisable. Leighton Demetrius of Circle D Farm Solar In Florida sent us the following as a remedy. For more Info contact him at Star Rt. 1, Box 70, Crescent City, FL 32112.—Editor

By Leighton Demetrius

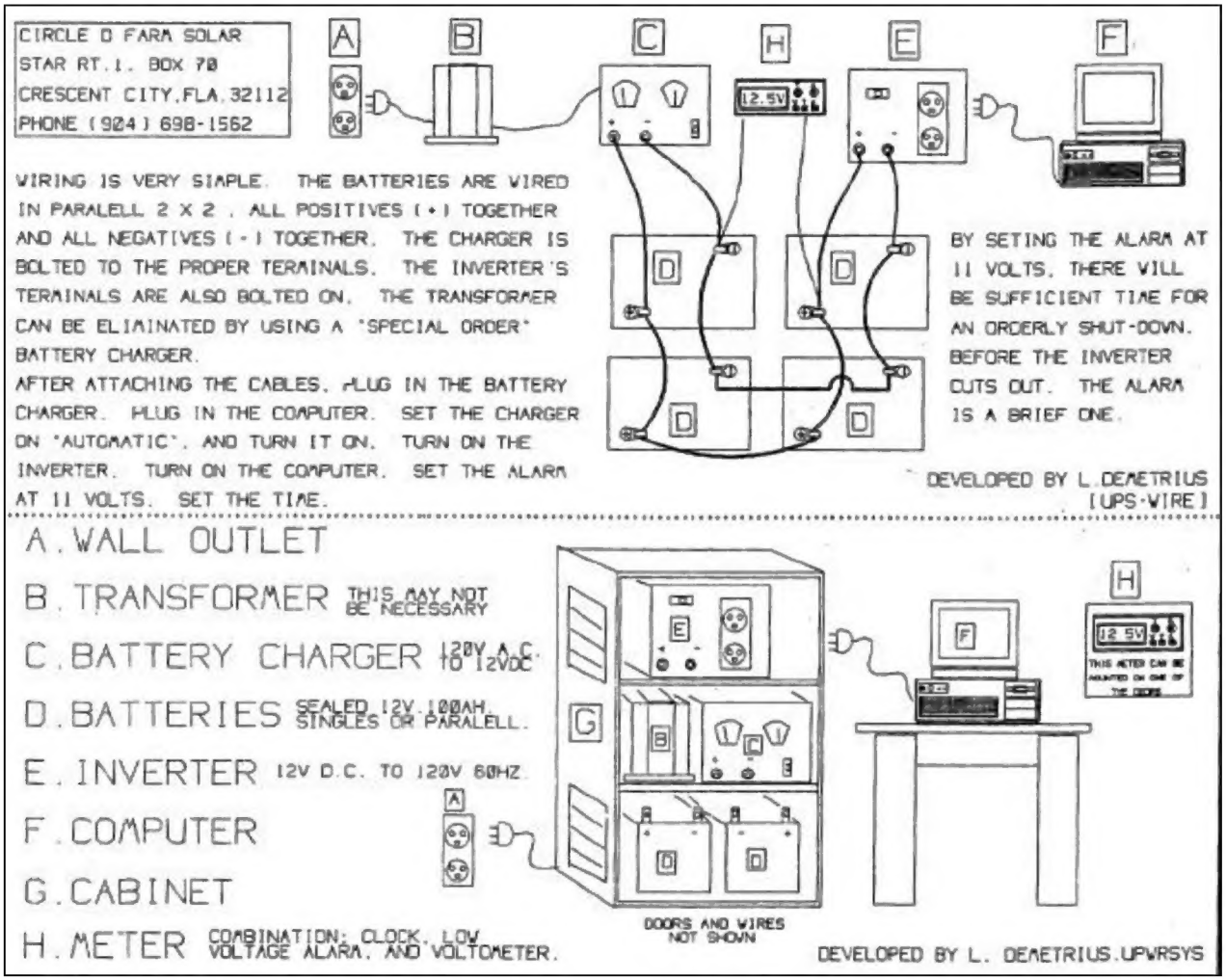
Although this "Computer Power Conditioning System" was developed for use by our customers in the Third World, it can be used by many of the readers of "Backwoods Home Magazine" in its present form. It can also be used with -many other power sources.

For the photovoltaic system, "A" would be the modules, "B" would become the combiner box and, "C" would become the regulator. Wind or hydro sources can be similarly configured.

The voltage regulation and conditioning capacity of the average personal computer's internal power supply (normally an AC to DC transformer and cooling fan) is minimal. Abnormal behavior in the main power source is apt to pass through and play havoc with the PC, where system instructions are controlled by varying internal voltage levels.

Those of you for whom irregular utility power is the problem, the battery charger acts as the primary buffer, putting out an even 12 VDC to the batteries. The important items in the U.P.S. for all users are the Storage Batteries and Inverter.

Good deep cycle storage batteries are available in many types and sizes. Inverters are available from many manufacturers. The better ones have a modified or a pure sine wave, and excellent voltage regulation at all output levels. You must choose an inverter with good voltage regulation and waveform at all output ranges and surges.These power conditioning systems can be built in any size, from a station for a single PC on up to a system such as we have here, which has 40 kilowatts of battery storage and 4500 watts of DC to AC inverter capacity. Our main power source is a combination of photovoltaics, utility and propane generator, and we have enjoyed uninterrupted energy for the past five years. Δ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PHONE (904) 698-1562
A
B
C
H
E
F
12.5V
D
WIRING IS VERY SIMPLE. THE BATTERIES ARE WIRED IN PARALELL 2 X 2 . ALL POSITIVES (+) TOGETHER AND ALL NEGATIVES (-) TOGETHER. THE CHARGER IS BOLTED TO THE PROPER TERMINALS. THE INVERTER'S TERMINALS ARE ALSO BOLTED ON. THE TRANSFORMER CAN BE ELIMINATED BY USING A "SPECIAL ORDER" BATTERY CHARGER.
AFTER ATTACHING THE CABLES, PLUG IN THE BATTERY CHARGER. PLUG IN THE COMPUTER. SET THE CHARGER ON "AUTOMATIC", AND TURN IT ON. TURN ON THE INVERTER. TURN ON THE COMPUTER. SET THE ALARM AT 11 VOLTS. SET THE TIME.
BY SETING THE ALARM AT 11 VOLTS, THERE WILL BE SUFFICIENT TIME FOR AN ORDERLY SHUT-DOWN. BEFORE THE INVERTER CUTS OUT. THE ALARM IS A BRIEF ONE.
DEVELOPED BY L. DEMETRIUS (UPS-WIRE)
A. WALL OUTLET
B. TRANSFORMER THIS MAY NOT BE NECESSARY
C. BATTERY CHARGER 120V A.C. TO 12VDC
D. BATTERIES SEALED 12V 100AH. SINGLES OR PARALELL.
E. INVERTER 12V D.C. TO 120V 60HZ
F. COMPUTER
G. CABINET
H. METER COMBINATION: CLOCK, LOW VOLTAGE ALARM, AND VOLTOMETER.
G
DOORS AND WIRES NOT SHOWN
DEVELOPED BY L. DEMETRIUS.UPWRSYS